A39 – Airbus KC-30A

The arrival of the first Airbus KC-30A A39-003 of No 33 Squadron at its new home at RAAF Amberley on 30 May 2011. Source: Department of Defence

Two Dassault Rafales of the Armee De l'Air (French Air Force) in formation with Airbus KC-30A A39-004 of No 33 Squadron (left) and air-to-air refuelling from the drogues (right) while en route to Australia to participate in Exercise *Pitch Black 2018* at RAAF Darwin, Northern Territory, in July 2018. Source: Department of Defence

With the retirement of the RAAF's first operational air-to-air refuelling (AAR) aircraft, the Boeing 707, planned for 2008, a replacement Multi-Role Tanker Transport (MRTT) aircraft to provide additional strategic airlift and AAR capability was identified under Project AIR 5402.

The RAAF selected a modified version of the Airbus A330-200 airliner to fill the role, operated by No 33 Squadron at Amberley as part of Air Mobility Group. The decision to acquire the initial fleet of four aircraft, with an option for a fifth, was announced in December 2004 and the first aircraft entered service in June 2011.

Named A330MRTT by the manufacturer and KC-30A by the RAAF, a fifth aircraft option was later taken up to ensure simultaneous KC-30A contingency operations. In July 2015, the Australian Government approved the acquisition of a further two KC-30As, converted from ex-Qantas A330-200s. A39-006 was delivered in September 2017. A39-007 was delivered for modification in May 2018 and accepted into service in September 2019.

The acquisition of the two second-hand Qantas aircraft (the others were built new for the RAAF) had several advantages including that they were built by Airbus in the same batch as the first five and were therefore of similar mechanical specification, and had a known and local history.

The RAAF was the launch customer of the A330MRTT. A39-001 was the first of type manufactured by Airbus at Toulouse, France, and modified with the installation of refuelling systems at Airbus Defence and Space (formerly EADS-CASA) in Getafe, Spain. A39-001 first flew in Spain in June 2007 and was certified in October 2010 with the Aerial Refuelling Boom System (ARBS) installed under the rear fuselage and two Cobham 905E underwing drogue refuelling pods.

Subsequent aircraft were modified by Qantas at Brisbane, the first of these (A39-002) recording its maiden post-conversion flight in October 2009 and the last (A39-005) in November 2012. The first delivery to the RAAF (A39-003) was in June 2011 and all five had been handed over by 2015. The two former Qantas aircraft (A39-006 and A39-007) were modified in Spain to meet the delivery schedule. One of these was further modified internally to perform long-range government transport and communications duties.

The KC-30A's two refuelling systems are controlled by an Air Refuelling Operator (ARO) from the aircraft cockpit who can view refuelling operations remotely via 2D and 3D screens. RAAF KC-30A deliveries fell behind schedule as a result of protracted ARBS certification issues; these were resolved in early 2015.

The ARBS comprises a 'fly-by-wire' boom refuelling system that extends from the aircraft using a telescopic probe that extends to seventeen metres in length. This then plugs into the Universal

The commercial airliner origins of the Airbus KC-30A are clearly seen in this image. Source: Department of Defence

The view from an aircraft accepting fuel from the boom of an Airbus KC-30A of No 33 Squadron during a sunset air-to-air refuelling mission as part of Exercise *Lightning Storm* in August 2020. Source: Department of Defence

Aerial Refuelling Receptacle Slipway Installation (UARRSI) on the receiver aircraft, allowing the fuel transfer to commence. The ARBS can transfer fuel at a rate of up to 4600 litres 10 140lb per minute.

The refuelling pods mounted underneath each wing can each unreel a hose-and-drogue out to twenty-seven metres. The drogue is then entered by the refuelling probe on the receiver aircraft, allowing the fuel transfer to begin. Each pod can transfer fuel at a rate of up to 1600 litres (3527lb) per minute. All transferred fuel comes from the KC-30A's standard large capacity wing fuel tanks (there are no fuel tanks in the cabin area) and the aircraft can itself be refuelled by other boom-equipped tankers. Each KC-30A is both capable of receiving fuel via the UARRSI or offloading fuel through the boom or pods.

In the transport role, the KC-30A can carry up to 270 passengers in the main cabin, whilst its underfloor cargo compartments can carry up to thirty-four tonnes of military and civilian cargo in pallets and containers. This enables the aircraft to deploy long distances with, for example, a group of fighter aircraft and support crew with fly-away kits.

The KC-30A has advanced mission systems with data links, military communications and electronic warfare systems for self-protection against air-to-air and surface-to-air missiles. Operational experience has proven particularly useful to enable crews to deliver more efficient battlespace management of both tanker and receiver aircraft.

The introduction into service of the KC-30A brought with it a new aircrew category, the ARO. This was initially filled by aircrew who had served on other aircraft types. In 2018, a number of Air Combat Officers (ACO) underwent training as AROs on the KC-30A, enabling them to fulfil other roles in mission planning and conduct. There is now a growing pool of ACOs who undertake the ARO duties.

The KC-30A has been involved in a number of operational deployments since its introduction into service. The first was to the Middle East in support of Coalition forces in Operation *Okra* in 2014. This deployment was undertaken while the KC-30A was still to achieve Final Operational Capability but quickly demonstrated its considerable value and utility.

The deployment provided AAR support to the RAAF E-7A Wedgetail, F/A-18A Hornet and F/A-18F Super Hornet in addition to a range of Coalition aircraft operating over Iraq and Syria including from the United States, Canada, Spain, NATO (strategic airlift capability), the United Kingdom, France, Germany and Saudi Arabia. The KC-30A's reliability and efficiency led to it becoming the 'Coalition tanker of choice', so highly was it regarded.

In 2018, the KC-30A supported Operation *Okra* on a rotational basis, and then returned continuously from March 2019 to September 2020 when it was fully withdrawn from the Middle East. During its almost six years' commitment on Operation *Okra,*

An Airbus KC-30A of No 33 Squadron during boom refuelling trials in the United States, October 2015. Source: Department of Defence

A Boeing E-7A Wedgetail of No 2 Squadron refuelling from the boom of an Airbus KC-30A of No 33 Squadron as seen through the KC-30A's Air Refuelling Operator's flight deck refuelling station screens in the skies over Iraq during Operation *Okra*. Source: Department of Defence

Five Airbus KC-30As of No 33 Squadron taxiing out at RAAF Amberley in November 2019. Source: Department of Defence

the KC-30A completed 1 440 missions amassing 11 332 flying hours on force assigned missions, and offloaded over 105 million pounds of fuel through both the refuelling boom and pod systems.

The KC-30A has also provided recent AAR support to APEC 2018, refuelling F/A-18F Super Hornets over Port Moresby; Operation *Southern Discovery* 2017, refuelling a C-17A on an airdrop mission to Antarctica; air logistics support during Operation *Bushfire Assist* 2019-20; and the rotation of United Nations peacekeepers from Fiji to the Middle East. Since introduction into service of the government transport and communication configured aircraft in September 2019, the KC-30A has also supported the Prime Minister and accompanying media travelling to key international fora and summits.

While Australia was the launch customer of the Airbus A330MRTT, the aircraft has since been acquired by a number of other nations including the United Kingdom, Saudi Arabia, United Arab Emirates, Singapore, South Korea and France with others expressing an interest.

TECHNICAL DATA: Airbus KC-30A

DESCRIPTION:

Multi-role tanker-transport. Crew of pilot, co-pilot, one air refuelling operator, one mission coordinator and up to eight crew attendants.

POWER PLANTS:

Two 311.3kN (70 000lb) thrust General Electric CF6-80E1A3 turbofans.

DIMENSIONS:

Span 60.30m (197ft 10in); length 58.80m (192ft 11in); height 17.40m (57ft 1in).

WEIGHTS:

Operating empty 120 500kg (265 655lb); max loaded 233 000kg (513 675lb); max fuel load 111 700kg (246 235lb).

CAPACITY:

Up to 270 passengers in cabin, up to 34 000kg (74 955lb) freight in underfloor holds.

PERFORMANCE:

Typical cruise 874km/h (542mph); ceiling 12 500m (41 000ft); max unrefuelled range 13 890km (8631 miles). Can operate from any KC-30A capable RAAF base, fly for 3000km (1864 miles) and offload 54 tonnes (119 050lb) of fuel; and remain on station 1850km (1150 miles) from base for two hours and offload 65 tonnes (143 300lb) of fuel.

The nose and port engine of a No 33 Squadron Airbus KC-30A, with the front of the port drogue refuelling pod visible top right. Source: Department of Defence